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ABSTRACT

Because multimedia presentations are used to communicate diverse ideas, and because they employ mixtures of art forms, they have resisted systematic criticism. An attempt has been made to systematize criticism of multimedia presentations by using a variety of typologies to look at the style and structure of the presentation, its value to the audience, and the critic's personal reactions. By uniting the taxonomies of traditional schools of criticism with the philosophies of aesthetics and theories of mass media, a definition was synthesized for the role of multimedia critic, and formats for systematic criticisms were formulated. Future research should use this organizational framework to further examine how media format affects perception and learning. (EMH)

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A Functional/Experiential Approach to Criticism of Multimedia Programs

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Definitions of Multimedia

Multimedia programs--presentations using simultaneous combinations of audio tape, slides, and film--have been in use for almost twenty-five years. The first use of electronic media in such a unified, self-contained format was apparently the lecture on "Communication" done at the University of Georgia in early 1953 by Charles Eames, George Nelson, and Alexander Gerard. Nelson (1954) reports that no lecturer was used in this one-hour presentation; instead, all the material was contained in a series of films and triptych slide-tape montages. Multimedia programs in this multiscreen format are now actively used in disciplines such as education, business, industry, government, the arts, religion, and entertainment. References to these programs abound in the periodical indeces of education, popular literature, and the arts; however, there are other references to multimedia that do not address the multi-screen programs described above.

Multimedia is also used as an adjective to describe any object or activity which combines different media or elements. In this form, multimedia is synonymous with mixed media and is a proper term in the arts and in education. Klapper (1960, pp. 109-110) seems to have been the first to publish such a definition of multimedia; he used the term to refer to several separate media used sequentially in one lecture or campaign. Many current educational listings use this word as an adjective, referring either to lectures or to "multimedia kits" of records, pamphlets, filmstrips, and so on.

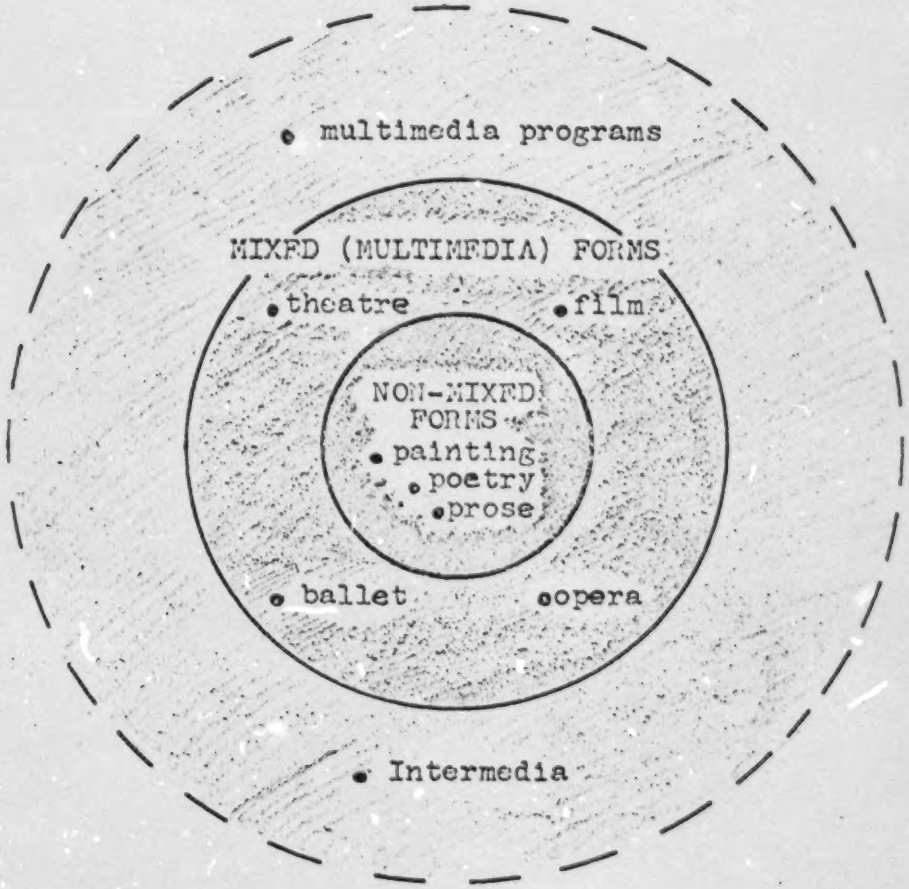
One way to reconcile the different definitions of multimedia is offered in Figure 1. In this model, there is a distinction between mixed activities and more direct expressions. For example, painting (pigment applied to a ground) is presented as a non-mixed form of communication. In such a system, writing and speech would also be non-mixed forms. All the other forms are multimedia (mixed media) of some sort. The first multimedia region is the loosely-bounded sphere of the traditional mixed forms, such as film, theatre, ballet, and opera, where conventions are generally accepted and recognized. In the outer realm of multimedia combinations are mixtures which are either less predictable or still undiscovered. Within this outer sphere are multimedia kits, multimedia programs (slide/tape/film), and avant-garde Intermedia performances. All of these combinations are recognizable by their resemblance to past, similar works, but they have few acknowledged conventions regarding format, length, or structure. Youngblood (1970, pp. 346-398) provides one way to distinguish multimedia programs from the multiple projections used in Intermedia pieces. He applies Intermedia to multiple projections used: (1) as large scale pavilion exhibits, (2) as accompaniment for human performers, and (3) as components in art gallery display environments. Thus, the mass audience multi-projections of world's fairs are Intermedia while the interpersonal scale of classroom presentations and convention exhibits is characteristic of multimedia programs.

Aesthetics of Mixed Forms

The graphic representation of the various communication media in Figure 1 is somewhat related to aesthetic arguments about pure and

FIGURE 1

Non-Mixed and Mixed Forms of Communication
(incomplete)



mixed forms of art. As recounted by Munro (1951, pp. 157-206), aestheticians over the centuries have offered various schemes for organizing the arts according to psychological functions, physiological appeals, or formal structures. The chief reason for these theories of artistic purity was to isolate each art into a proper frame of activity. Thus, systems were established for separating prose from poetry, isolating various dramatic genres, or performing similar actions. Several aestheticians, including Greene (1949) and Lalo (1953), flatly reject mixed arts such as opera. Munro (1957), however, proposes an outline grouping for the arts which covered all major and minor forms within six general categories. One of these categories, Arts of Public Performance, includes many art forms which are inherently mixed media: for example, drama, opera, ballet, cinema, radio, and television. It is clear that Munro's system would offer aesthetic justification for the mixtures of Intermedia and multimedia programs as well. Such aesthetic justification is necessary since all systems of qualitative criticism are grounded in aesthetics.

Communication and Criticism

Multimedia programs are used to serve a variety of communicative purposes. Unfortunately, this does not mean that there are schools of theory and criticism which underlie the production of multimedia programs. Virtually none of the cataloged writings on these programs deal with a philosophical basis for this form of communication. Perrin, writing in 1969 (p. 369) offered the only theory of multiple imagery to date. He said that simultaneous images on a large screen--or adjacent screens--

create a pattern of information comparison and simultaneous visual montage; these visually-rich displays increase information density and facilitate certain types of learning. There have been no further elaborations on theories of multi-image communication, nor have there been any examinations of critical methods to be applied to multimedia programs.

One reason for the lack of critical statements may be the misconception of what constitutes a critical act. There are several types of practical critics, as opposed to scholarly critics or popular critics, who make vital decisions regarding multimedia programs. These practical critics include teachers, art directors, agency executives, and clients from various civic and governmental groups. Normally, they would not see themselves as critics; nevertheless, the results of their critical comments are directly applicable to the immediate value of specific multimedia programs. Critical approval leads to good grades, agency approval, or approval of salary. Critical rejection leads to poor grades or revisions which cost the producer time, money, and prestige. Thus, the practical critic does not determine the historical worth of a message, as does a scholarly critic; however, he serves an important, pragmatic purpose in the creation and use of multimedia programs. Except for student projects, most practical criticism of multimedia programs occurs in a private session between producer and critic. After winning critical approval, the program is shown to the intended audience.

Unfortunately, criticism of this type is currently individualistic and subjective since there is no accepted system for criticizing multimedia programs. One purpose of this paper is to offer a uniform

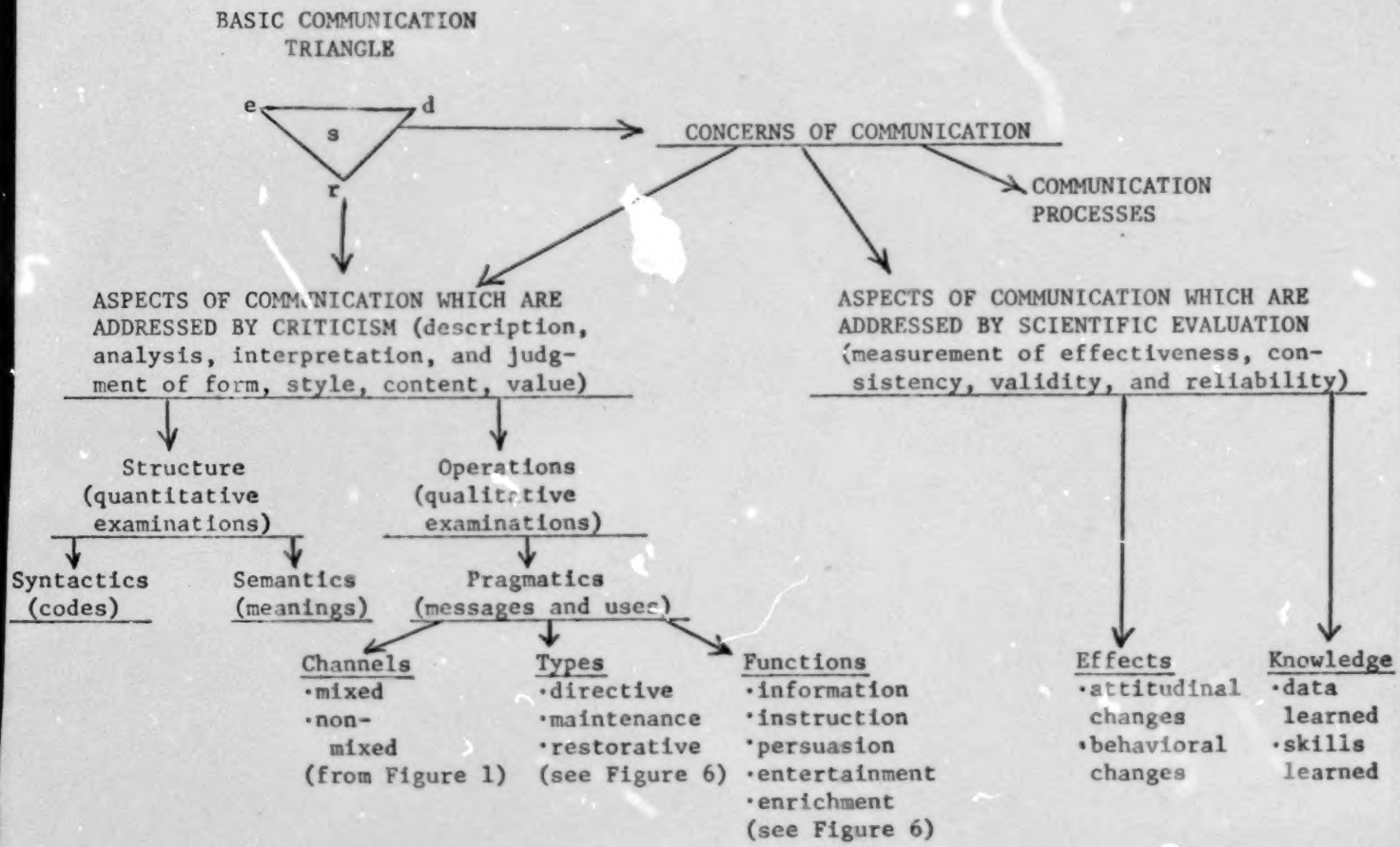
system for multimedia criticism. In constructing such a system, it is proper to draw from existing schools of criticism and from existing knowledge about the uses of multimedia programs.

Figure 2 shows some of the relationships between communication and criticism. As noted by Kinneavy (1971, pp. 18-20), the basic communication triangle of encoder, decoder, and reality is joined together by the signal and serves as the source of all language. Each of these language components can be analyzed separately, in both quantitative and qualitative fashions. Quantitative criticism is concentrated on the concrete, measurable aspects of linguistic structure. Various social science analytic methods, such as structuralism and semiotics, are part of this linguistic, quantitative spectrum. While these discoveries have value concerning the underlying transformational nature of multimedia communication, the methodology is not suited to the needs of the practical critic. Similarly, the measurable effects of communication are part of a lengthy quantitative discipline which is not relevant to the immediate needs of the practical critic. Only in the pragmatic aspects of communication are there areas related to spontaneous qualitative criticism. Even forms of communication and types of messages are more of a theoretical than a practical concern; consequently, the only aspect of communication which lends itself to immediate, qualitative criticism is the use of messages. In other words, practical criticism is directed to the uses or functions of communication.

Scholarly criticism is also focused on this aspect of communication, but with a further emphasis on judgments of enduring social value.

FIGURE 2

Some Interrelationships between Communication and Criticism
Adapted from Kinneavy (1971, p. 25)



The scholarly critic determines the historical worth of a message. The scientific evaluator measures the effectiveness of a message. The practical critic makes an immediate personal decision that affects the use of a message. Practical critics are the necessary arbiters between producers and audiences. Through informed, responsible actions by such critics, audiences will benefit by receiving programs that are understandable, attractive, useful, and highly enjoyable.

Functional/Experiential Criticism

Practical criticism and scholarly criticism are both focused on the functional use a message has for society or particular segments of society. Thus, it would seem proper to examine existing systems of scholarly criticism in constructing a consistent method of practical criticism. Many of these schools of criticism are categorized in Figure 3. Further information on each of these critical methods is contained in the writings of Dickie (1973), Scott (1962), and Tudor (1973). The general qualitative schools are suggested by Abrams (1953) and Adams (1971). Each major school is focused on a different part of Kinneavy's basic communication triangle, although the terminology shifts to words suggested by Abrams: encoder becomes artist, decoder becomes audience, reality becomes nature, and the signal is the work of art. The major schools of qualitative criticism emerged in different centuries and are not really compatable in their emphases. Even the modern subdivisions noted in Figure 3 are firmly grounded in outlooks which cannot be reconciled into one total viewpoint.

FIGURE 3

Schools of Criticism

A. Type of Criticism:	Qualitative			Quantitative	
B. Focus: nature, content	audience, style	artist, creative process	work of art, elements	linguistic structure	measureable social effects
C. Major School: Mimesis	Pragmatism	Expressionism	Objectivism	Structuralism	Social Science
D. Some Subdivisions:					
•Neo-Platonism •Expressive Symbolism	•Psychological Criticism •Moral Criticism	•Auteur Criticism	•Instrumentalist Criticism •Formalist Criticism •Semiotics	•Archetypal Criticism	•Sociological Criticism •Historical Criticism •Genre Criticism

Adapted from Abrams (1953), Adams (1971), Dickie (1973), Scott (1962), and Tudor (1973).

Thus, while the various schools of scholarly criticism all offer some useful insights to the practical critic, none of them are ideally suited to the full situation of the multimedia program. The program itself should be examined, as in Objectivism; however, the functional purpose of the program and its potential effects on the audience should also be examined, as in Pragmatism. Relation of the program to nature or reality might well be a content consideration. Further, the expressive personality of the producer and the individual perceptions of the critic should be taken into account. It is important to include the emotional response of the critic when constructing a system of criticism. Emotional, experiential reactions may encourage internal biases and misplaced emphases which would hinder the critic's attempt at objective, detailed analysis. A critic must re-examine his experiential reactions and possibly re-evaluate his judgments. He must try to balance his feelings against his observations. Often, these feelings serve as a filter through which observations are made. A critic must be aware of these responses, thereby keeping the filters as clear as possible. Taking all these considerations together, the critic will find himself examining: (1) style and structure of a program, (2) content of a program, (3) potential value of the program for a specific audience, and (4) his own experiential reactions from observing the program.

Of the various aesthetic approaches available to the practical critic, the only one which encompasses all of the above considerations is the "aesthetic field" of Berleant (1970). His phenomenological approach focuses on the artist (producer), the aesthetic perceiver (critic or

audience member), the work of art (multimedia program), and the performer (in the case of multimedia programs, the critic experiencing the program). Like other modern aestheticians, Berleant stresses the active involvement of the critic/perceiver in the aesthetic situation. The critic and the rest of the audience are seen as vicarious performers who empathize with the work and mentally merge with it as it is presented. Further, Berleant (pp. 47-73) requires both artist and perceiver to be active and receptive; he characterizes the experience in non-cognitive, qualitative terms: sensuous, immediate, unique, intrinsic, situational, integral, and intuitive.

Phenomenology is now seen as an approach to criticism which avoids the divisions indicated in Figure 3. Ortega y Gassett (1975) argues that all of life is a phenomenological dialogue between a person and his environment. Writers such as Ong (1971) suggest that art as well is an "I-thou" dialogue in which the consciousness of the artist (and the reality he abstracts from) is joined to the consciousness of the audience (including the critic) by means of the work of art. As such a dialogue, phenomenological aesthetics unites the major qualitative critical concerns in a holistic manner. Thus, from the demands of practical criticism and from the insights offered by phenomenology, we can suggest <u>function</u> and <u>experience</u> as the key areas of practical criticism.

The functional/experiential method of multimedia criticism is ultimately based on phenomenology, the description of primary interactions. Sender, receiver, message, and environment are the components of the total situation of communication. Interfacing between all these components must

be accounted for when a complex channel of communication such as the multimedia program is involved. Functional examinations lead to analyses of the sender's intentions, the structure of the message, and the potential effects on the audience. Experiential observations emphasize the reaction of the receiver and the influence of the environment. This environmental factor could refer to creative influences on the producer, presentational influences on the critic, or informational needs of the audience. This entire situation of multimedia communication should be examined in the process of practical criticism. Perhaps this situation can be clarified further by more discussion of the process of multimedia communication.

Nature of Multimedia Communication

Most single image slide-tape programs are similar in format and technique to films and filmstrips. A number of approaches to theory, production, and evaluation of these media are currently available to producers and critics. Therefore, an assumption is made here that practicioners of multimedia need explanations of multi-image multimedia programs. Further, the specification of slide/tape/film combinations for these programs does not rule out related technology such as overhead projectors and videotape. Another related attitude is that multimedia programs are not bound to specific running times, numbers of images, or image configurations.

Figures 4 and 5 show a model of the multimedia communication process, without regard for the function a particular program serves.

FIGURE 4

The Process of Multimedia Communication
(detail on following page)

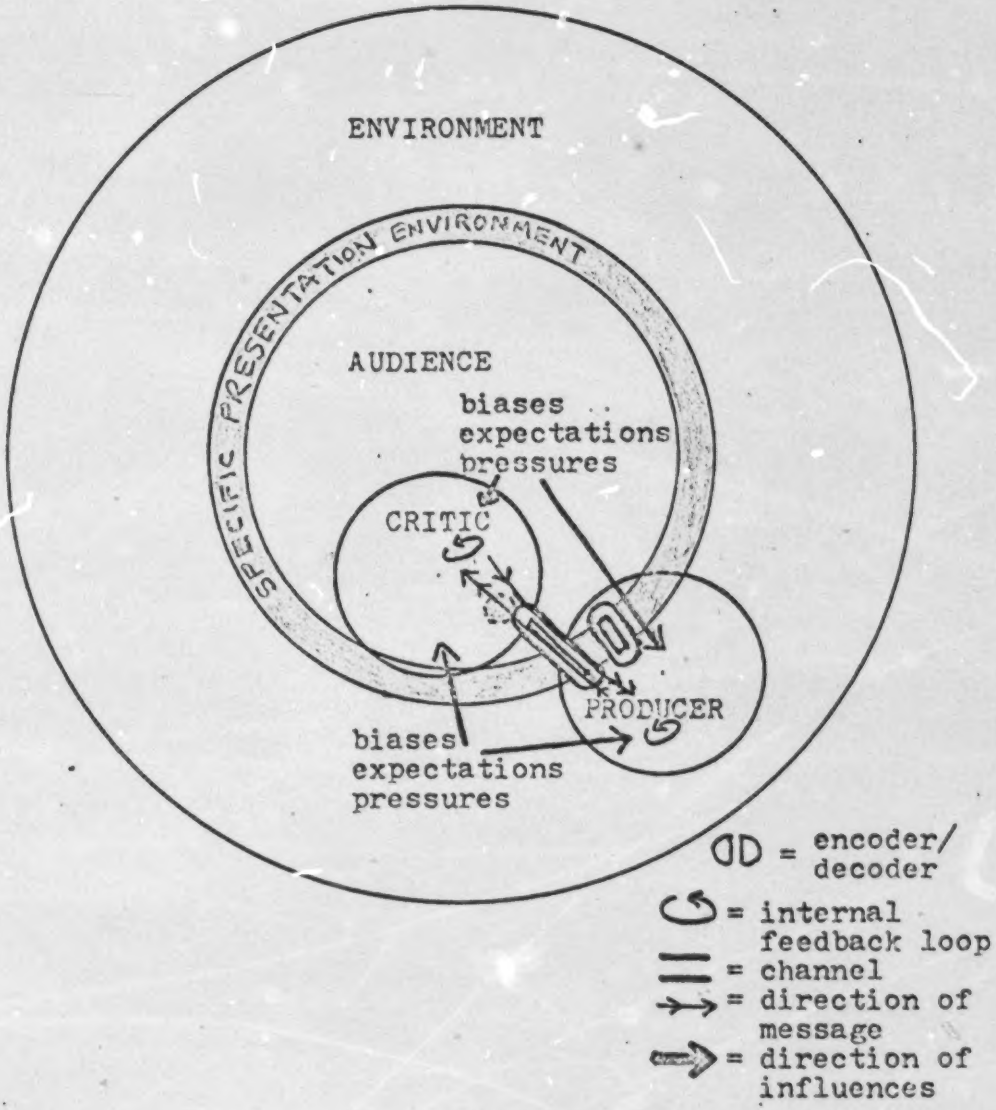
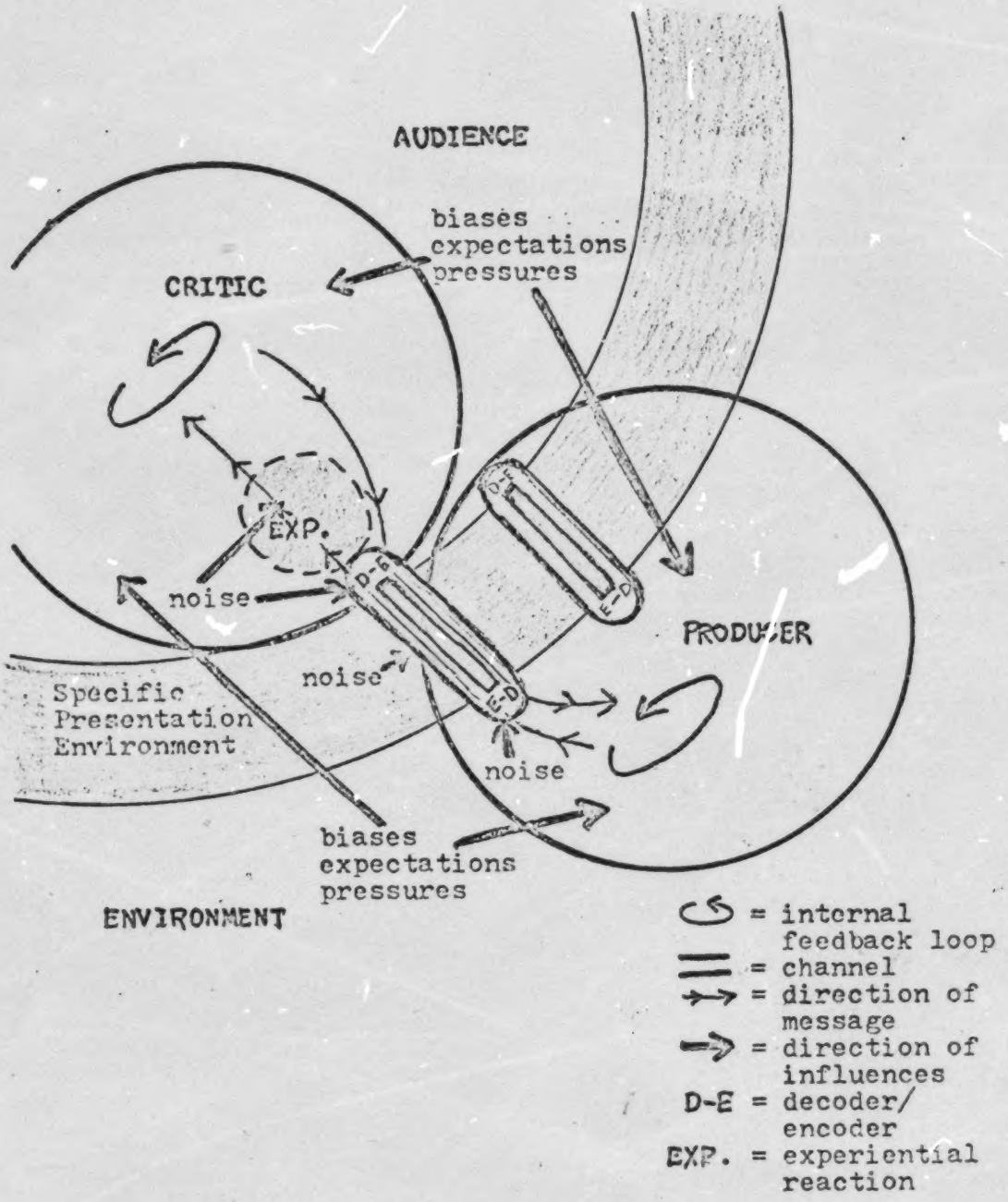


FIGURE 5

The Process of Multimedia Communication

(detail of Figure 4)



Like all models, it is illustrative of the general process rather than a particular instance. In this model, critic and producer could refer to any of the students, teachers, agency executives, employees, clergymen, and artists noted above. Similarly, the communication channel is any multimedia program, no matter what length or format it is, what message it carries, nor what function it serves. The model is drawn as a series of concentric circles to show the interrelationships of critic, producer, program, audience, and larger social environment.

Berleant's phenomenological aesthetic field is incorporated into this model since the entire communication process is illustrated. Further, the concerns for encoding, decoding, and retention of all messages is included. The common basis of all multimedia communication is indicated here, thereby embracing all producers, critics, and audiences. Interaction is shown in this model to emphasize the understanding which must be achieved between producer and critic. During the presentation of a multimedia program, the producer becomes the primary communicator. Through that program alone, he sends a specific message to a particular audience. The critic must act as part of that audience, trying to empathize and perceive the program as they would perceive it. Total identification of critic with audience is not anticipated, but the critic must not forget the needs and expectations of the specific audience. For example, students who need to learn geometric theorems will expect enumeration of ideas, repetition for clarity, and examples to illustrate concepts. The critic must remember the instructional needs of these learners when he criticizes the program. Some critics may have preconceived notions that all programs

should use certain elements, humor for example, in order to be effective. Such presumptions prevent a critic from understanding an audience and from giving a fair evaluation to a program.

Essentially, the producer communicates to the critic (and to the rest of the audience) with the multimedia program. This amounts to breaking through the presentation environment which protects the critic and the audience from involvement. Secure in the isolation of the classroom, theatre, or convention hall, the audience member must be attracted and stimulated by the multimedia program. Interest must be aroused and attention must be maintained for the channel to stay open between producer and audience member. Interest loss closes the channel, thus leaving the audience member separated from the producer's message. External noise in the presentation environment or internal noise at the encoding or decoding stages is a significant factor in the loss of attention.

Both producer and critic are subject to external biases, expectations, and pressures. These influences come from the audience and from the general social environment. The producer and the critic also influence each other through biases, expectations, and pressures natural to relationships such as student and teacher, employee and employer, or colleague and colleague. A communicator considers these influences when constructing a message; he also considers the inherent limitations imposed by the program's function and content. From these internal ideas and modifications (feedback loops), both the producer's message and the critic's response are formulated.

In the process of communication through multimedia programs the producer's message is composed, encoded into a specific structure and format, and transmitted through the channel of projected images and recorded sounds. The critic decodes what his eyes and ears perceive, but he does not passively receive the message just as the producer transmitted it. Within the critic, there is an emotional response to the incoming message. This personal, experiential reaction serves as the filter through which the message passes before it is completely translated and categorized. Such experiential feelings as interest, empathy, and pleasure are likely to make the critic more receptive to the program. If the critic is pleased by the program, he may see the pictorial compositions as aesthetically pleasing, hear the soundtrack as captivating, perceive a clear function, and find value in the message. Likewise, negative experiential reactions such as discomfort, embarrassment, boredom, irritation, or defensiveness are likely to make the critic hostile to the program. An agitated critic may see technical decisions as flaws, may nitpick structural and aesthetic choices, and may search for counterarguments to the message. This experiential filtering is important to the communication process because it affects the critic's perception, even if he thinks he is objectively receiving the transmitted message.

Perception of the message, response to it, and the various external influences on the critic will all be processed through internal feedback loops. Then the critic formulates a response to the producer, based on the decisions which result from this internal processing. The critic's message is encoded into spoken or written words; next it is

transmitted to the producer through either the channel of speech or the channel of an evaluation form. Once the producer has decoded this message through his eyes and ears, he is ready to process the critic's response. Internal or external noise may enter these encoding and decoding processes at any point. Response from the critic serves as the basis for further verbal communication between producer and critic. In a public performance there might not be such immediate response, but there would be the possibility of a published critique. Concerning the practical critic, though, it is assumed that there is direct dialogue between producer and critic. It is also assumed that there will be a private evaluation session in which the critic explains his remarks to the producer. After modifications and critical approval of the program, it is shown to an audience in a classroom, convention hall, church, or public pavilion. Some programs, such as student projects, must be shown directly to the audience without prior critical approval.

Practical criticism deals with subjective analysis and judgment of multimedia programs rather than with the empirical measurement of effectiveness. Thus, uniform critical responses cannot be expected. The experiential influence affects judgments of technical quality and compositional unity. Critics of commercial productions are attentive to such elements as focus, exposure, visual composition, clarity of narration, and consistent audio volume levels. Competant handling of these elements may make a program quite attractive to a commercially-oriented critic. Similarly, an educationally-oriented CRITIC may be most aware of content, while hardly noticing minor technical flaws. None of these critical responses

are more correct than others; they simply refer to different situations.

A practical critic cannot experience a program and then state definitely that the program will achieve its ultimate purpose. Critics cannot predict how much learning or pleasure will occur. These effects, if they can be known, can be measured only after the presentation. Still, the practical critic serves a worthwhile purpose by using his expert knowledge to assess the potential value of a specific program before it is shown to its public. Skilled producers should make programs, since they can use THEIR technical capabilities to present successfully the ideas in a message. However, critics should be the experts in evaluating programs. Critics have a position of detachment from the work; they can perceive it and judge it free from the creative investment the producer feels in his accomplishment. Often the critic is also a producer, but in the act of criticism he must align himself with the audience and their needs.

Critics of multimedia programs usually preview a work for the audience. The critic is expected to gauge the potential value of the program for that audience. In his evaluation he notes structure, style, and ideas; then he commends successes and analyzes failures. Consequently, the practical critic acts as a sentinel for the audience, guarding them from incoherent or noisy messages. Even the teacher evaluating a student project is comparing it to the best possible version which could have been presented to the class.

Description, analysis, and judgment should be substantiated with reasons and observable evidence. Specific justifications might be organized

best in a written evaluation instrument. Based on the arguments presented above, such an instrument would emphasize functional qualities of the work and experiential qualities of the presentation. The format and inclusions of such an instrument require discussion in greater detail.

Functions of Communication

If a functional approach is taken to practical criticism of multimedia programs, there must be some clarification of what functions communication serves. The basic assumption here is that these functions are somewhat discrete. While any specific message probably uses elements from two or more functions, there is normally only one primary function being served. Thus, an informational program may use some persuasive techniques and some entertaining devices, yet remain essentially an informational experience.

In Figure 2 the functions of communication are designated as information, instruction, persuasion, entertainment, and enrichment. This designation is a compilation from several writers on communication, especially Cavert (1974) and Schramm (1971). Articles, chapters, and books have been written about differentiating these functions and specifying their purposes and attributes. Figure 6 presents the ideas of several writers concerning message types, functions, and purposes. These specific message types were suggested by Wiebe (1971), while the message purposes were extrapolated from Carpenter (1973), Kaplan (1966), Lasswell (1971), and Wright (1959).

One of the main characteristics that separates the various functions of communication is the applicability of quantitative measurement. For

FIGURE 6

Types of Messages
as Related to Functions of Messages

TYPE	ACTIVITY STRESSED	FUNCTION	PURPOSE
DIRECTIVE	awareness, attention, comprehension	INFORMATION	surveillance
	acquision and retention of data and skills	INSTRUCTION	cultural transmission
	yielding, acceptance, committment	PERSUASION	correlation (politics, economics)
MAINTENANCE	stabilization, routine work and conversation	ENTERTAINMENT	ritual
RESTORATIVE	rebellion, vicarious sensory stimulation, pleasure	ENTERTAINMENT	
	expression, rapture, meditation	ENRICHMENT	discovery

Adapted from the writings of Lasswell, Wright, Schramm, Cavert, Carpenter, Kaplan, and Wiebe as cited in this study.

example, both instructional and persuasive messages can be measured for the attainment of specified goals by the receivers. These two functions, along with information, emphasize certain quantities in the message content. Information is different from instruction and persuasion in that informational learning is not designed to be measured against a precise state of previous knowledge and behavior. McGuire (1973, p. 226) notes that instruction and persuasion have a further level of differentiation: instruction stresses attention and comprehension while persuasion stresses yielding. As Schramm (1971, pp. 47-48) notes, entertainment is quite similar to instruction, information, and persuasion in having definite: (1) structural qualities, in that all these messages require encoding, attention-gathering devices, decoding, and reduction of noise; (2) immediate effects, in that each functional message is used for a specific purpose; and (3) long-term effects which can be measured in various ways. Entertainment messages are known for their immediate emotional effects on audiences, but these messages also provide some measurable affective results. Imitative behavior, especially concerning violence and role modeling, has long been a subject of study concerning entertainment.

Only the long-term results of entertainment messages can be quantitatively measured, though; there is little in the actual message that can be quantified for recall since such an outcome is not important to this function. Producers of informational and entertaining messages do not implant specific items in their programs which can be tested later for recall. Audience reaction to these messages can be validly measured, as can general social learning, but such measurement is more of a

psychological study than a criticism of a message or an evaluation of effectiveness. In comparison to the other functions, enrichment is more elusive since its effects are very subjective and virtually unmeasurable.

Enrichment encompasses diverse and subtle ideas which could be called spiritual, implying a general metaphysical feeling rather than a specific religious experience. In its fullest sense, the enrichment function includes aesthetic experience, artistic insight, intellectual discovery, meditative tranquility, religious ecstasy, romantic love, platonic love, sensuality, and passion. Following traditional distinctions, enrichment includes the discoveries associated with the fine arts; entertainment, on the other hand, takes in the ritualized, stimulation-centered activities of the popular arts. Some writers see these functions as being the same, with allowance for varying degrees of technical facility and manipulation of ambiguity. However, a closer examination, such as performed by Kaplan (1966), shows that enrichment emphasizes spontaneity, challenge, intensity, and similar types of involvement. Entertainment, though, operates on a more patterned level of personal and social re-inforcement using stereotypes, familiarity, and sentiment.

An understanding of the differences between each of the five functions will aid the practical critic in evaluating a multimedia program. Programs and messages serving each function will display certain structural and content characteristics that are necessary to that function. Critics must take each program in its functional framework when judging the successful attainment of the desired goal. Specific characteristics of each function are detailed in Figure 7. Since this

FIGURE 7

MULTIMEDIA EVALUATION INSTRUMENT, LONG FORM (24)

DATE_____

PRODUCER OF PROGRAM_____

TITLE OF PROGRAM_____

RUNNING TIME___:___ # OF IMAGE AREAS___ # OF AUDIO SPEAKERS___

EQUIPTMENT:

1. slide projectors (#)___ dissolve units (#)___
2. audio tape___ mono___ stereo___ quad___
3. movie projectors (#)___ movie projectors synchronized___
4. programmer___ if yes: punch paper tape___ tone control___
5. other_____

RUNNING COMMENTS IF ANY:

CONCEPTION	EXECUTION

FEELINGS

FIGURE 7, p. 2

FUNCTION:

I. RANK ORDER THE FOLLOWING FUNCTIONS AS YOU FEEL THAT THEY APPLY TO THIS PROGRAM. PUT NUMBERS ABOVE THE PROPER BOXES.

INFORMATION:	INSTRUCTION:	PERSUASION:	ENTERTAINMENT:	ENRICHMENT
•specified locales, persons, dates, activities •repetition for clarity	•explicit learning objectives •repetition emphasizing the objectives	•arguments & implicit or explicit conclusions •examples to substantiate arguments	•predictable structure & conclusions •nonthreatening theme or ending	•thought or contemplation inspired •internal awareness stimulated

Very early into the program what did the function seem to be? _____ Was that impression confirmed?___

How often was the function clear?

25% of the time___ 50%___ 75%___ over 75%___

II. WHAT FACTORS LED YOU TO CHOOSE THE FUNCTION RANKED FIRST ABOVE? FROM THE FOLLOWING CONSIDERATIONS, CHECK THOSE THAT YOU FEEL APPLY OR GIVE SHORT ANSWERS WHERE APPROPRIATE.

External indications of function:

___ producer's statement
___ pamphlet or handout
___ poster or other advertisement
___ other verbal clues (specify briefly)_____
___ other clues (may include such things as presentation environment, e.g. classroom, theatre, convention hall, etc.)

_____
_____
_____
_____

Internal indications of function:

paraphrase dominant message_____
_____
_____

devices which support dominant message:

___ narration
___ audio-visual reinforcement
___ audio-visual juxtaposition
___ multi-image reinforcement
___ multi-image juxtaposition
___ appropriate length
___ arrangement of image areas
___ placement of speakers

FIGURE 7, p. 3

devices which support dominant message (continued):

___ pacing: fast___ moderate___ slow___ varied___
___ memory associations between various program elements
___ enumeration of important points
___ re-emphasis of important points
___ question/answer
___ humor
___ ambiguity
specify presumed intended audience_____

Note any other program elements which support the function:

_____

_____

Note some major program elements which distract from the function:

_____

_____

III. SPECIFIC FUNCTIONAL CONSIDERATIONS. RESTRICT YOUR RESPONSES TO YOUR FIRST-RANKED FUNCTION ONLY.

strongly agree		not certain		strongly disagree	
←				→	
					Information:
—	—	—	—	—	Contents are clear.
—	—	—	—	—	Repetition is used for clarification.
—	—	—	—	—	Perceptual capacity of the viewer is respected.
—	—	—	—	—	Potential "noise" is overcome by emphasis and clarity.
					Instruction
—	—	—	—	—	The contents can be tested.
—	—	—	—	—	The unit could integrate with other units of an instructional package.
—	—	—	—	—	The unit reflects general goals of the instructional institution.
—	—	—	—	—	The content is appropriate to the objectives.
—	—	—	—	—	The content is appropriate to the educational level of the intended audience.
					Persuasion
—	—	—	—	—	The program indicates that the producer is competant.
—	—	—	—	—	The style of the argument puts the audience into a receptive mood.
—	—	—	—	—	The arrangement of the argument is clear, logical, and conclusive.
—	—	—	—	—	The argument is appropriate to the audience.
—	—	—	—	—	The style is condusive to the conclusions of the argument.

FIGURE 7, p. 4

'strongly agree ← not certain → strongly disagree

Entertainment

— — — — — The program's theme is familiar.
— — — — — The program's structure and development predictable.
— — — — — The conclusions are generally expected.
— — — — — Ambiguity and challenge are mostly avoided.
— — — — — The program emphasizes diversion, fun, or change from commonplace "reality."

Enrichment

— — — — — The program uses ambiguity to maintain interest.
— — — — — The treatment of the theme seems original.
— — — — — The message elements or conclusions are somewhat unexpected.
— — — — — The content is more affective than cognitive.

IV. TECHNICAL CONSIDERATIONS

strongly agree ← not certain → strongly disagree

— — — — — Technical quality of the visuals (exposure, focus) is excellent.
— — — — — Technical quality of the audio (levels, distortion) is excellent.
— — — — — The presentation environment (light level, visability, image size, audio volume) is excellent.
— — — — — Aesthetic quality of visuals (composition, clarity) is excellent.
— — — — — Aesthetic quality of audio (variety, editing) is excellent.

EXPERIENCE:

What percentage of the time did this program hold your attention:
25%___ 50%___ 75%___ over 75%___

What feelings did the program arouse in you that seem to support its primary function?_____

_____

What feelings did the program arouse in you that seem to negate its primary function?_____

_____

Do you think that your emotional response would be similar to that of a member of the intended audience: yes___ no___

FIGURE 7, p. 5

SUMMARY EVALUATION:

strongly agree ←				not certain	→ strongly disagree	
___	___	___	___	___		The program's function was clear over 50% of the time.
___	___	___	___	___		The total experience of the program affirms the perceived function.
___	___	___	___	___		The program's structure enhances the function.
___	___	___	___	___		The program displays style and technique that enhance the function.
___	___	___	___	___		This program has high value for the (presumed) intended audience.

Overall rating:
superior__ above average__ average__ below average__ inferior__

Accepted___ Rejected___

Comments (including suggestions for revision):

REVIEWER_____

FIGURE 8

MULTIMEDIA EVALUATION INSTRUMENT, SHORT FORM

Date_____

Producer and Title of Program_____

Very early into the program what did the function seem to be: (circle)
INFORMATION INSTRUCTION PERSUASION ENTERTAINMENT ENRICHMENT

Was that impression confirmed at the end of the program: yes__ no__
If not, what did the function seem to be at the end of the program:
INFORMATION INSTRUCTION PERSUASION ENTERTAINMENT ENRICHMENT

Respond to the following statements by checking the appropriate blank.

strongly agree ←		not certain		strongly disagree →	
__	__	__	__	__	The program's function was clear over 50% of the time.
__	__	__	__	__	The total experience of the program affirms the perceived function.
__	__	__	__	__	The program's structure enhances the function.
__	__	__	__	__	The program displays style and technique that enhance the function.
__	__	__	__	__	Technical quality of the visuals (exposure, focus) is excellent.
__	__	__	__	__	Technical quality of the audio (levels, distortion) is excellent.
__	__	__	__	__	The presentation environment (light level, visability, image size, audio volume) is excellent.
__	__	__	__	__	Aesthetic quality of visuals (composition, clarity) is excellent.
__	__	__	__	__	Aesthetic quality of audio (variety, editing) is excellent.
__	__	__	__	__	This program held my attention over 50% of the time.
__	__	__	__	__	This program aroused feelings in me that seem to support its primary function.
__	__	__	__	__	This program has high value for the (presumed) intended audience.

Comments (including suggestions for revision):

Overall rating:
superior__ above average__ average__ below average__ inferior__

REVIEWER_____

discussion has now turned to actual evaluation forms, more explanation should be given about the hypothetical critical instruments presented in this paper.

Evaluation Instruments

One way to focus subjective, practical criticism would be to construct a qualitative evaluation instrument, similar to instruments of scientific measurement. However, the attempt to organize and clarify responses must not lead to scoring critical opinion as if it were empirical testing. Critical opinions cannot be scored for numerical validity in the manner of quantitative measurement. Numerical values can be assigned to responses, and response items can be validly related to each other. Nevertheless, any total score on a critical instrument would be relative only to the specific critic using the instrument. Personal opinions cannot be numerically equated to universal values; however, a qualitative critical instrument would be useful and proper in organizing and representing a critic's responses

A qualitative critical instrument should guide the critic to all the relevant considerations about a multimedia program. Based on the functional and experiential concerns examined in this paper, relevant statements about multimedia programs would include: (1) what function a program serves, (2) what evidence justifies this choice of function, (3) how well a program serves a specific function, (4) what technical and stylistic standards a program achieves, (5) what emotional responses the critic has to the work, and (6) what the perceived value of the

program is for the audience. A useful qualitative evaluation instrument would require the critic to respond to each of the above points. Figure 7 (five pages) and Figure 8 (one page) are examples of such hypothetical evaluation instruments, the first a fully elaborated questionnaire and the second a shorter summary checklist.

Informal testing with these instruments revealed concepts which need to be clarified for the critic. Foremost among such considerations is the idea that both critic and producer have the goal of achieving a successful multimedia program. Thus, there should be a concentration on cooperation and full explication of the program in question. The producer cooperates by specifying all of the presentational data before the preview showing of the program. Function, title, running time, number of image areas (screens or areas on a large screen), number of audio channels, number of slide and movie projectors used, number of dissolve units used, and type of automated programmer used are among the items which the producer should specify to the critic. If the critic knows this information before viewing the program, he can be more aware of how a program's format enhances the total presentation.

The design of a multimedia program will often determine the clarity and effectiveness of the message. Number of image areas, arrangement of these areas, and arrangement of the audio speakers can often increase the total comprehension of a program. A multimedia program is not required to have just one, two, or three screens, nor is it required to have audio speakers placed near the screens. Some topics might lend themselves to cruciform or X-shaped formats; some content might be

delivered best with quadraphonic audio signals filling the audience's entire environment. Similarly, image size can be a design consideration. Some ideas would be best clarified if one large image area were used for topic statements and smaller image areas were used for supplementary information. Pacing and length must also be appropriate to the program. Pacing should be slow enough to allow comprehension yet fast enough to maintain attention. Length should not exceed the time necessary to present and explain the primary message.

Re-inforcement and juxtaposition of images and sounds can be used for such purposes as clarity and irony. Audio-visual redundancy is very effective for clarity, especially when related audio and visual cues are combined in the message. In addition, message elements can be used metaphorically to add further levels of meaning to a presentation. Verbal descriptions of farms accompanied by pictures of farms, farmers, and produce would be an example of audio-visual redundancy. Verbal descriptions of American crop surpluses accompanied by pictures of food, feasting Whites, and starving Blacks would be an example of multi-image juxtaposition used for an ironic effect. Simple audio-visual juxtaposition could result from a soundtrack describing the rigors of a job while the accompanying images show a person loafing. Any of these structural devices may be used to enhance a message, but in any program some devices will be more effective than others.

Technical and aesthetic considerations about a program are often the most troublesome concepts for a practical critic. Those critics who are not producers themselves often do not feel competant to judge the

production aspects of a program. An evaluation instrument can provide little help in gaining technical knowledge that a critic does not already possess. Reference to textbooks will help, but only practice as a producer or judge will sharpen a critic's eyes and ears. Possibly the simplest distinctions that can be made are those of technically recording the images and sounds and aesthetically arranging images and sounds.

Thus, technical quality of the visual element includes sharp focus and proper lighting of the main pictorial subject. Technical quality of the audio element includes: recording and reproduction of the aural signal with consistent levels of volume; elimination of signal distortion; and elimination of background noises, unnecessary machine "clicks," and background "hiss." Aesthetic quality, or arrangement, of the visual element includes interesting compositions and proper placement of shapes, lines, and colors to lead the eye directly to the important subject matter. These design considerations are necessary for both individual images and the composite compositions of multiple images. Aesthetic arrangement of the soundtrack includes the choice of narration or singing voices, the use of variety, and the skillful editing of the components. Placement of ONE sound after another, transitions between sounds, and balance between background and foreground sounds are all aesthetic considerations about audio.

A problem in evaluation arises if the soundtrack is simply one pre-recorded commercial song, since the aesthetic quality cannot be related to the program producer. In such a case, the critic should minimize his comments on the aesthetics of the audio and concentrate instead on the

technical quality of the transfer dubbing. A similar situation occurs when the visuals are copies of commercial photographs or advertisements. Again, emphasis should be placed on the producer's technical skill in proper exposure and judicious cropping of the original.

Another concern is the environment of the presentation. The producer must provide: (1) proper sightlines to the screens, (2) images large enough to be seen by the most distant viewers, (3) a light level low enough for image clarity but possibly high enough for note taking, and (4) a soundtrack loud enough to be heard clearly but soft enough to avoid distortion. Failure in any of these areas could result in external noise sufficient to block the transmission of the intended message. Often the private preview session with the critic will not be in the same location as the actual presentation. When this is the case, these environmental considerations cannot be evaluated adequately in the preview showing. Still, the producer must demonstrate an awareness of these presentational factors in the design of the program.

A final critical consideration relates to the basic nature of multimedia programs: these programs are composed of restructured time but they are presented in actual mechanical time. Slides freeze actions and environments, allowing space and time to be re-arranged at will, especially in multi-screen formats. Similarly, film is normally arranged in restructured time through editing; audio tape is also an edited, manipulated product. Yet, this reconstructed "unreal" multimedia world is presented in the real operational time of tape recorders and slide projectors. The critic should be aware of the inherent limitations of a medium where tape

playback speeds, rotating slide trays, and advancing punch paper tape restrain even the most sophisticated automated programmer. A virtually miraculous mechanical ballet occurs when presentational technology is respected and used within its natural limitations. Therefore, the critic should accept noticeable slide changes, machine noises, and slight projection distortion ("keystoning") as inherent in this mixed medium. These minor inconveniences are going to occur whenever multimedia programs are presented in spaces which were not designed for such technical complexity. Consequently, mechanical distractions should be noted only if they are significantly exploited or overcome.

Specific functional and experiential evaluative statements are also included in the hypothetical instruments. The following references are among the many that are directly related to the proposed statements about function: information--Shannon and Weaver (1949); instruction--Cavert (1974); persuasion--McGuire (1973); entertainment and enrichment--Carpenter (1973), Kaplan (1966), and Wiebe (1971). Further, Schramm (1971) serves as a general reference for all five functions. The experiential statements are intended to guide the critic's internal examination of his feelings and reactions. It is hoped that concentration on these aroused feelings will clarify to the critic how his emotions affect his attention span and his evaluative judgments.

Both a long and a short critical instrument are suggested to apply to varying presentational situations. The long form takes about twenty minutes to complete and provides a thorough examination of the program's structure and accomplishments. This detailed form would be used in private

sessions between the critic and the producer. Since the short form can be completed in five minutes, it is ideal for rapidly-changing situations such as presentations of student projects or judging of entries in a multimedia festival. Thus, the short form provides direction to a critic who must make immediate public decisions without prior consultation with the producer. Of course, such instruments must be tested for validity and reliability before they can be put to general use.

Directions for Further Study

Future studies about multimedia programs should first involve discussions of the ideas presented in this paper. There is currently little unified knowledge and activity among practicioners of multimedia; consequently, extensive talks and writings about definitions, functions, functional considerations, multi-image theory, and multimedia criticism are necessary. A desired result of such discussion would be agreement on the parameters of multimedia programs. If diverse critics and producers could adopt common concepts regarding their programs, then communication between them would be improved on both a local and a national level. It must be emphasized, also, that agreement does not necessarily have to support the ideas presented in this study. If logical systems for describing and evaluating multimedia programs can be accepted, then the particular system chosen should not be a point of dispute.

Once concepts have been accepted on the nature of multimedia communication and the format of critical instruments, then work should proceed on testing of evaluation instruments. Proper research will show which statements have validity and reliability when applied to

multimedia programs. This would result in instruments which could be uniformly used, at least in this culture, to judge a wide range of multimedia programs. Specific evaluations would still be relative to individual critics; however, prior agreement on terminology and the meaning of certain critical responses would provide a basis for clear communication between producers and critics. Further, common acceptance of terms and concepts about multimedia programs would give producers a set of guidelines to follow when constructing their programs.

Other areas which need to be researched are perception and learning as related to multimedia programs. Perception of multiple images must be extensively compared to perception of single images, as suggested in Goldstein (1975). Then further study must be done on multiple imagery as related to perceptual factors such as: color, size, movement, image configuration, rapidity of image change, and effects of dissolving images as compared to non-dissolving images. Another perceptual topic which needs to be studied relates to information overload. Several studies exist concerning perceptual limitation and multiple-channel stimulation, but no definitive conclusions have been found. First, studies should be done to determine how much visual information can be combined with simple aural information when retention and recall are important to the program. A more difficult relationship to determine would be the interaction between complex visual information and complex aural information. There must be research to determine if a flexible ratio exists between aural and visual stimulation. If so, general guidelines should be established to aid producers in constructing programs.

Aural complexity and visual complexity must be compared in terms of comprehension so that these two aspects of the program can be kept within the perceiver's physical capacity.

Learning from multimedia programs also must be studied in depth. Extensive testing must be done on the effectiveness of multimedia programs in relation to attention, immediate recall, and retention of information. The existing studies in this area have been few and contradictory. Controlled and replicable examinations should be done comparing multimedia programs to other channels of learning. These studies will be difficult because it may not be sufficient to simply compare single-screen and multi-screen versions of the same program. One of the advantages of simultaneous, multiple sources of information is the possibility of marginal commentary. Through the complex format of a multimedia program, peripheral relationships can be presented along with the basic subject matter of the program. In testing learning through multimedia programs, it may be necessary to compare basic and expanded versions of the same subject matter. Learning styles may also be a factor in these studies. For example, a program with an expanded treatment of a topic may be too complex for some learners. However, a possible indirect effect for these learners might be that the excitement of a complex program would help them retain the basic core information. Whatever the results, all the factors relevant to complexity of the topic, learning styles, and ability of the learners should be incorporated into the testing.

Multimedia programs are a contemporary phenomenon, using current technology in new combinations to reveal information and insights. Like any medium, these programs are subject to the needs of their producers

and users. Future improvements in video production, transmission, and projection could affect the nature and use of multimedia programs. Home projection of large multiple images might be possible from video disks, video cassettes, or cable transmission. These innovations would eliminate many of the current problems associated with distribution of multimedia programs. Equipment reliability might also be improved. If such changes occur, it would not mean that the multimedia program would be replaced by video. It would simply mean that contemporary technologies would again evolve, merge, and result in a new mixed medium. The new combination might be named multimedia or videography or some other descriptive title.

Multiple-image multiple-channel communication is popular and effective; surely, this form of message delivery will remain in future generations. No matter what technology is employed, there will always be a need for eager, responsible practical critics. These guardians will continue to protect audiences by demanding that multimedia programs be functional, well produced, and interesting.

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